

## CLAIMS

1. An active power regulating system of a wind farm, the wind farm comprising an array of aerogenerators ( $A_i$ ), a communications network (RS), and a monitoring and control system (ST), the system comprising:

- 5 - means for connecting to said monitoring and control system (ST),
- means for receiving data relative to the apparent power  $P_{out}$  put out by the farm at all times, and data relative to variables and states of the aerogenerators ( $A_i$ ), from said monitoring and control system (ST),
- means for comparing said output apparent power  $P_{out}$  with a preset apparent
- 10 power set-point  $P_{cons}$  of the farm,
- means for continuously adjusting said output apparent power  $P_{out}$ , such that this output apparent power  $P_{out}$  approaches at all times the preset power set-point  $P_{cons}$ .

2. A system according to claim 1, characterized in that said means for continuous adjustment of the output apparent power  $P_{out}$  comprise:

- 15 - means for calculating the regulation capability of the farm at every moment according to said data relative to the output apparent power  $P_{out}$  and said data relative to variables and states of the aerogenerators ( $A_i$ ),
- means for selecting which aerogenerator or aerogenerators ( $A_{i_{selec}}$ ) may be actuated, according to said data relative to variables and states of the aerogenerators
- 20 ( $A_i$ ),
- means for sending to said one or more aerogenerators ( $A_{i_{selec}}$ ) selected via the monitoring and control system (ST) and the communications network (RS) of the farm, commands relative to:
  - regulation of the power set-point, or operating point, and/or
  - 25 - shutdown and startup.

3. A system according to any of preceding claims, characterized in that it comprises a safety control with:

- means for comparing said output apparent power  $P_{out}$  with a preset safety power set-point  $P_{cons.seg}$  of the farm, so that if said  $P_{out}$  is greater than  $P_{cons.seg}$ , the
- 30 system sends a shutdown command to one or more aerogenerators ( $A_i$ ).

4. A system according to any of the preceding claims, characterized in that it comprises means for calculating the active power trend.

5. An active power regulation process of a wind farm, the wind farm comprising a group of aerogenerators ( $A_i$ ), a communications network (RS), and a monitoring and

35 control system (ST), the process comprising:

- receiving from said monitoring and control system (ST) data relative to the apparent power  $P_{out}$  put out at every moment by the farm, and data relative to variables and states of the aerogenerators ( $A_i$ ),
- comparing said output apparent power  $P_{out}$  with a preset apparent power set-point  $P_{cons}$  of the farm,
- continuously adjusting said output apparent power  $P_{out}$ , so that this output apparent power  $P_{out}$  approaches at every moment the preset power set-point  $P_{cons}$ .

6. A process according to claim 5, characterized in that the continuous adjustment of the output apparent power  $P_{out}$  comprises:

- calculating the regulation capability of the farm for each moment according to said data relative to the output apparent power  $P_{out}$  and said data relative to variables and states of the aerogenerators ( $A_i$ ),
- selecting which aerogenerator or aerogenerators ( $A_{i_{selec}}$ ) may be actuated, according to said data relative to variables and states of the aerogenerators ( $A_i$ ),
- sending to said one or more selected aerogenerators ( $A_{i_{selec}}$ ), via the monitoring and control system (ST) and the communications network (RS) of the farm, commands relative to:
  - regulation of the power set-point, or operating point, and/or
  - shutdown or startup.

7. A process according to claim 6, characterized in that when the continuous adjustment of the output active power  $P_{out}$  implies sending commands relative to the shutdown of one or more aerogenerators ( $A_i$ ), said selection is performed according to a set of pre-established criteria.

8. A process according to any of claims 5-7, characterized in that it comprises a safety control wherein:

- said output active power  $P_{out}$  is compared with a preset power safety set-point  $P_{cons.seg}$  of the farm, such that if said  $P_{out}$  is greater than  $P_{cons.seg}$ , a shutdown command is sent to one or more aerogenerators ( $A_i$ ).

9. A process according to any of claims 6-8, characterized in that regulation of the power set-point, or operating point, of said one or more aerogenerators is prioritized with respect to the shutdown or startup of another or other aerogenerators.

10. A process according to any of claims 6-8, characterized in that the shutdown or startup of said one or more aerogenerators is prioritized with respect to the regulation of the power set-point, or operating point, of another or other aerogenerators.